# MODIS Team Meeting Minutes

## Minutes of the MODIS Team Meeting held on Tuesday January 10, 1995.

## Action Items:

94. Provide a detailed (high fidelity) analysis of scatter in the scan cavity. The results would determine the need for PF near field scatter measurements vs scan angle. Assigned to Guenther 8/23/94 Preliminary results due 10/15/94. Final due 2/28/95.

101. Provide an assessment of the SBRC test plan to measure radiometric accuracy as a function of scan angle position (sections 11.6.3 and 11.7 of the Performance Verification Plan). Assigned to Guenther 10/25/94. Due 11/29/94. Revised due date 1/17/95

108. Prepare a report addressing the status of the MODIS Reliability Program. Reliability elements will include: FMEA, Worst Case, CIL, Reliability Assessment and Parts Device Stress Analysis and Trend Analysis. Assigned to Silva 1/ 3/94. Due 1/17/95

## Attendees:

| | | |
|---|---|---|
| √ Richard Weber | Bruce Guenther | Larissa Graziani |
| √ John Bauernschub | √ George Daelemans | √ Bob Martineau |
| √ Rosemary Vail | Patricia Weir | √ Bob Silva |
| Lisa Shears | √ Mitch Davis | √ Robert Kiwak |
| √ Mike Roberto | √ Ken Anderson | Harvey Safren |
| √ Nelson Ferragut | √ Rick Sabatino | √ Ed Knight |
| √ Gene Waluschka | Cherie Congedo | Harry Montgomery |
| √ Bill Barnes | √ Jose Florez | Marvin Maxwell |
| √ Les Thompson | Gerry Godden | Bill Mocarsky |
| √ John Bolton | Sal Cicchelli | √ Helen Phillips |

The following items were distributed:

1) Weekly Status Report #171
2) SBRC Memos submission from week #163
3) Minutes of the previous team meeting

## Tech Weekly 13 Jan 95

**Award fee milestone writeups are due by close of business Wednesday, January 18.**

### Correction

In last weeks email of the tech weekly, IGSE was identified as a possible source of 60 cycles. The source of the 60 cycles measured by SBRC was determined to be light input from the overhead lights.

## Bob Martineau

The prime PF S/MWIR SCA went through performance testing. It was then taken to where it would be mounted to the motherboard. Now power was applied after the performance test. Wire bonding was done on the motherboard. Then inspection was done. The open area in the middle of the readout chip was the area of damage, not near the pad.

The assembly was input into test. There was high power dissipation, high current, no output. One of the pads metalization appeared to have been pushed through to silicon. If the metalization became shorted to the substrate, the functionality of the chip could have been lost. The following possible reasons for the problem were under consideration:
1) Electrostatic discharge
2) Chemical attack
3) Mechanical Impact - this is thought to be the problem; there were a large number of cracks in the overglass coming from the area of damage.

The SCA was removed from the flatpack. The punched out pad was observed. A vacuum chuck was used to hold the chip in place while mounting to the motherboard (possible candidate for the damage). The impact area was a few mils in diameter. The damaged area appeared to be discolored. Reason for this is unknown.

The schedule impact of this is that the FPA will be delivered to Systems in mid March (2 months from current schedule). Joe feels that part of the recovery will be a new lot of S/MWIR detectors.

## Systems Telecon 1/9/95

The following was provided by Tom Pagano:

NASA: Ed Knight, Harry Montgomery, Bill Barnes, Tim Zukowski, Mike Roberto, Gerry Godden
SBRC: Pagano, Young, Therrien

Barnes: When do you perform scatter testing?

Pagano: During the week of the 16th.

Barnes: We will be there the 17th. Barker will be there around the 24th and 25th

Barnes: Do we have a separate blackbody for the IR channels?

Jim: We plan to use the IAC. It goes up to 1000K

Mike. Deviation 11 was approved last Friday, based on the measurement data. Preparing for the CDR at the spacecraft 1/31 to 2/2. Mehrten and Cushman from SBRC.

Mike. Scan mirror sample was CO2 jet cleaned at GSFC. Allowed sample to get very dirty. One snow clean didn't do the job. They will try another one and if that works then they will recommend another cleaning. They will go to University of Maryland and use their SEM to determine the impact of cleaning.

Tom: What kind of contaminants?

Bill: An open room for 12 hours. Extremely contaminated when started.

Mike: Greater than 3600 greater than 10 um before cleaning, 250 after.

Godden: Surface was very dirty. Concerned that the witness samples were extremely scratched and may not be representative of surface itself. Would not recommend using these witness samples for scatter testing. T. Kampe wasn't positive himself about the witness samples.

Godden: Wants a teleconference with Jim, Breault and Spiak regarding the data they use for the Near Field Response production run.

Godden: Does anybody know what the scan mirror condition is at this time?

Young: Unaware of any measurements at this time.

Tom: We will clean the mirror before scatter testing. Can inspect the witness also after cleaning.

Godden: Will use a high power microscope. Terry has a scatter number for derived scattered light. Where did that come from?

Young: Will talk to Terry.

Knight: Did you receive my phone mail message about the MWIR filters?

Tom: Tom Kampe was also concerned and was going to look into the temperature when.

Knight: Update to MSAP. Was that in design or structure?

Tom: Only in the file handling structure.

Young: BCS is here at SBRC and ready for installation in the DMCF.

Knight: What about the crazing condition?

Young: There is some crazing. When the BRDF was measured and put into ORDAS, the effective emissivity was calculated as being 0.9994. Both of these numbers is greater than what we had in the specifications of 0.999.

Knight: What is the status of the FOV data?

Tom: Need to write the test report. Will also include the data in the delivery of TAC.

Godden: Did you see our memo on scattered light?

Tom: Yes.

Knight: Are the diodes in the SRCA susceptible to radiation?

Young: Don't have any data. Do you have data that would suspect that they are.

Godden: What is the size of the detectors. Believe they could be operated with a relatively large integration time. Could make them susceptible to integration backgrounds.

Tom: Can we table this discussion.

Barnes: We'll talk when we come out there.

Knight: What is the status of the TAC. Expecting beta delivery this week.

Tom: DN Analyzer complete, waiting on DN function software. Gain & Offset software complete, C-Sub software complete tomorrow. Polarization software needs to be modified for scanning mode. Near field response software in test.

Zukowski: What is I&T Schedule?

Tom: Photons to DN this week. Gains and offsets this week. Why don't we FAX you a schedule today.

Zukowski: Did you complete SIS calibration?

Young: No.

Roberto: Was 60 cycle noise you saw lights?

Neil: Yes

Barnes: Will be there the morning of the 17th.

End of Tom's report.

## Eugene Waluschka

1. Charles Hee (x-4804) has done a radiation analysis for the motor/encoder BK- 270 glass. He assumed 10 K rads. The glass darkened by 4%. This is not a problem.

2. SHI-YUE Qiu has preliminary ghosting/point spread function results for detailed ray tracing (one million rays per focal plane) of each focal plane. Wavelength is taken into account. For example, a ten band focal plane would have 100,000 rays per band.

Preliminary results indicate that a two zone prefilter for the LWIR is not adequate. Analysis will be performed for three or more zone prefilters.

3. The coating of the scan mirror witness sample was done at the same time as the scan mirror. These two coatings are probably about the same.

4. Brij Gambhir (SSAI) has done a study of the non-uniformity of the solar diffuser irradiance as a function of solar angle, etc.

5. The S/MWIR prefilter has five or six zones depending on how you keep score.

### George Daelemans

The scan mirror motor could see - 5 degrees C. A thermostatically controlled heater could be used to assure the scan mirror motor would never be too cold to be able to start.

### Nelson Ferragut

Schaeffer is planning to break vacuum later today on the dry torque and torque margin bearing test. SBRC needs to be sure the test was fully documented before breaking vacuum. May want to run another temperature case.

### Cherie Congedo

1. Note: Tom Wolverton is not now preparing for a modal survey of the structural model after breakdown of the EM.

2. ABC Loral may be in the process of laying off people.

3. Tom has finished his sine vibration analysis. High risk items are the radiative cooler, space view door, and the SAM. These may need to be notched if we do a sine vibration.

4. Tod Hovey is doing the MEM structural analysis.

5. Tom Endo is doing acoustic analysis on the door.

### Ed Knight

For the midwave filters, all six have center wavelengths which are high by about the same amount. This would be consistent with measurements being done at a higher temperature.

### Dry Torque and Torque Margin Bearing Test

There was a call from Bob Leighty of SBRC to ask if GSFC had any test requests before vacuum was broken on this scan bearing. Tom Pagano, Al DeForrest, and Joe Kleeburg concurred with breaking vacuum on the test.

Mike Roberto
January 13, 1995